

SICK ROOM EQUIPMENT

The present day hospital bed and associated sick room equipment have been strongly influenced by the development of machines, metals and metals processing techniques. The contrivance of special beds, notably mattresses of material impervious to air or water and filled with either one or the other, for the use of sick or wounded persons leads one to believe that there is no limit as to how far man will go in the effort to achieve greater comfort and convenience. Although the varied nature of sicknesses and operations demands versatility in the hospital bed, this goal was achieved somewhat slowly.

The first big development in hospital beds was a simple change of spring height (changed from 18 inches to 27 inches above the floor) which put the patient at a convenient servicing elevation. The flat spring was improved upon by the addition of manually adjusted head and knee sections, and for ease of operation hand cranks were later included - the cranks being used to adjust these positions. Even more flexibility was obtained with the installation of a third crank, which controlled the bed center section, and a slight modification of the two crank spring. The distance between the spring and its horizontal supporting members was increased on the two-crank spring so that both the head and foot sections could be put in a position below the horizontal if that was so desired.

With the addition of adjustable end supports to this already versatile spring system one might wonder what else we could do. Perhaps just refinements, and again, maybe an entirely new concept.

(1956) Prepared under the direction of George H. Wood at the
Massachusetts Institute of Technology

Side - Adjusting Spring

Side-adjusting springs (Fig. 1) help patients help themselves. Convalescent patients who want to sit or recline, simply pull lightly on a handy lever - - - - shift their body weight ever so lightly - - - and the bed responds gently to their wishes and eases into new and more comfortable positions! Both patient and nurse benefit where side-adjusting beds are used. A bedside lever enables convalescent patients to shift the bed to eight different positions without help. As a result, nurses get fewer bell calls, and have more time to perform other duties.

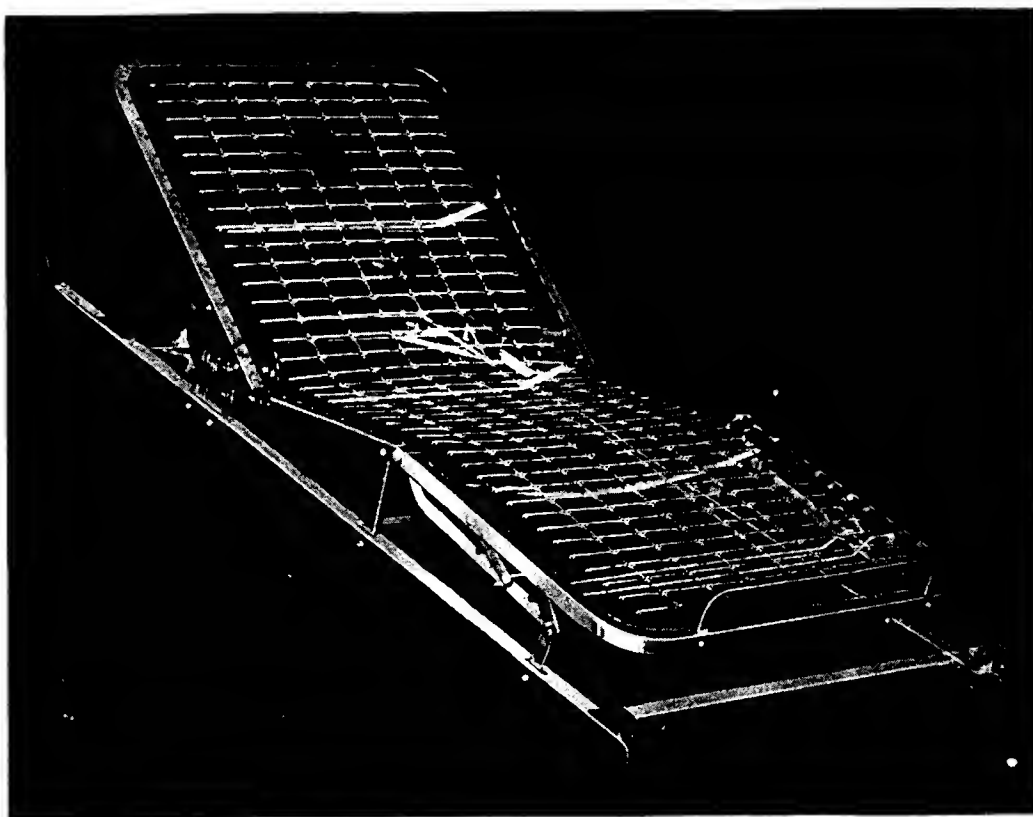
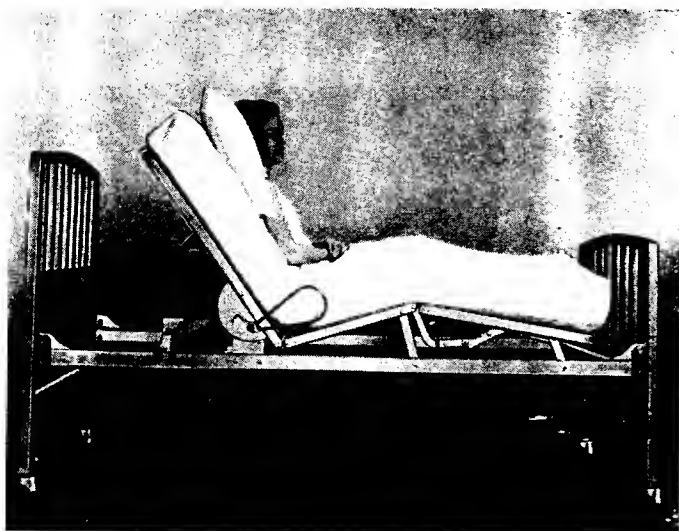


Fig. 1.

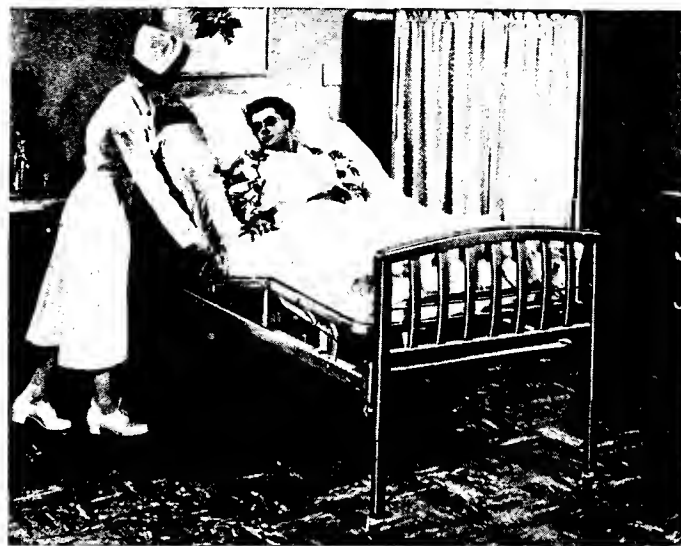
When nurses or attendants operate controls, all shifting is done at bedside without stooping, lifting, or stopping to change bed positions. Fowler, shock, hyperextension and many other positions (Fig. 2) can be made in a matter of seconds. When necessary, the bed may be secured in any position desired with a lock which is located out of the patient's reach.

Side-Adjusting Spring L-190

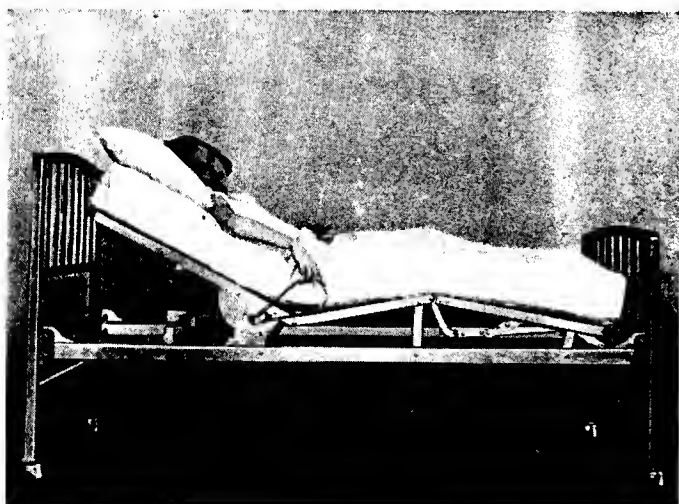
posture positions show the versatility of this spring, a total of twenty-five positions are readily obtainable



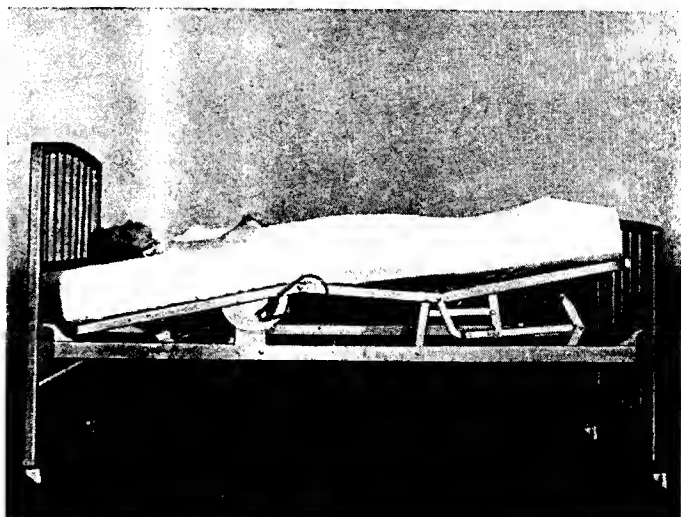
HIGH SITTING POSITION—Convalescent patients, who are permitted to do so, can adjust the bed to different positions without calling a nurse for assistance.



NURSE OPERATION—Nurse can easily adjust bed to meet the patient's requirements without bending or stooping. No cranking is required. Nurse can observe patient at all times. Foot section is raised manually.

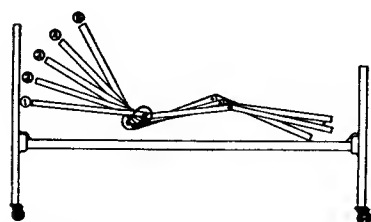


RECLINING POSITION—Back section rises or lowers gently. The action of the foot section is coordinated with the back rest section and operates automatically.

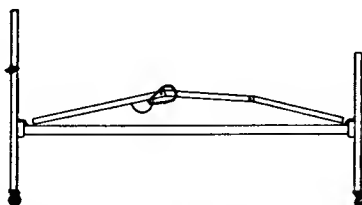


TRENDELENBURG POSITION—Fowler, shock, hyperextension and many other positions can be made in a matter of seconds. Bed may be secured in any position by lock.

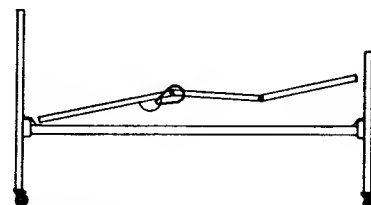
How the Side-Adjusting Spring operates



SITTING POSITIONS—The head section is raised by releasing the control handle and raising the section with the left hand. Section may be stopped at any one of five positions from reclining to high sitting heights.



HYPEREXTENSION—Both head and foot sections may be lowered manually by swinging the head and foot section supports towards the bed ends and pressing the sections down until they lock.



TRENDELENBURG—The head section is lowered as for the Hyperextension position, then the foot section is raised until the pawl arm rod drops into the selected notch in the foot control ratchet.

Fig. 2.

Two-Crank Spring

The improved two-crank spring (Fig. 3) has greatly increased the flexibility and versatility of the two-crank bed with but a relatively minor modification of

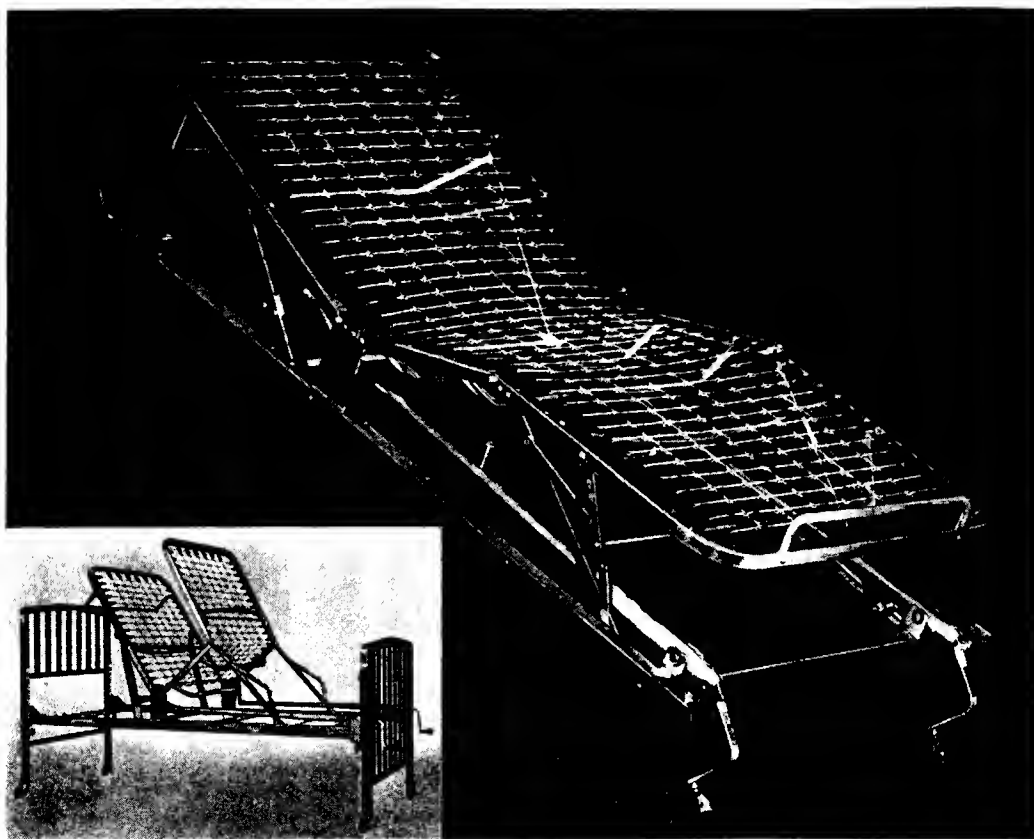


Fig. 3.

the original two-crank spring. A comparison of the improved two-crank spring and one version of the original two-crank spring (Fig. 4) will show that the only change was to separate the horizontal spring position and the spring frame. This improvement enables the nurse to lower either the head or foot section of the spring below its horizontal position. The manual lifting and blocking of the bed ends is the usual procedure for obtaining these positions with the original two-crank spring. A few of the additional positions obtainable with the improved two-crank spring are shown in Figure 5.

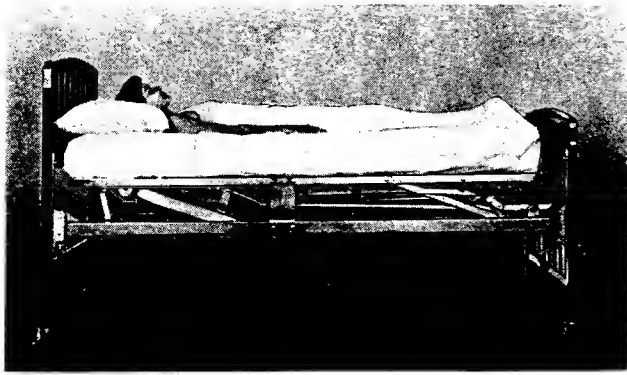


Fig. 4.

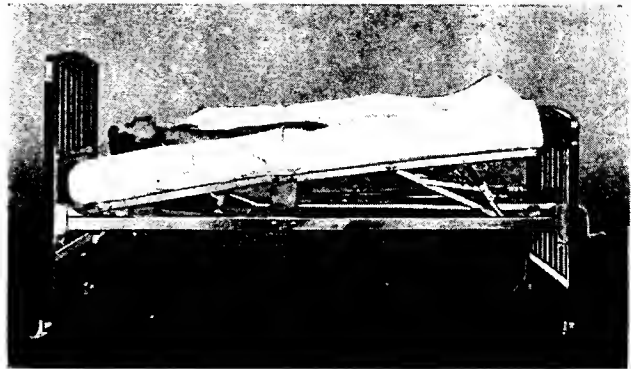
Deckert Multi-Position Spring

The positions in which patients are placed on hospital beds are important not only for comfort, but also as a means of avoiding certain post-operative complications and as a contributing factor to more rapid recovery. A speedy convalescence from certain operations and many medical cases demands the maintenance of certain positions in bed. This creates an important nursing problem since the number of positions obtainable with the ordinary two-crank bed is very limited. An ideal hospital bed, consequently, has to provide complete adaptability to all patients whatever their height, weight, and condition.

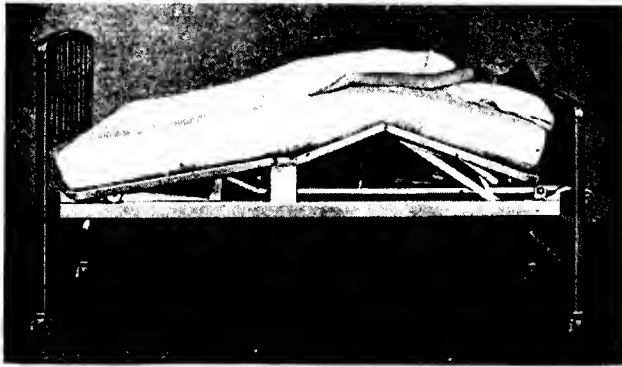
The versatility of the Deckert Multi-Position Spring (Fig. 6) helps the doctor and the nurse solve all body posture problems, and at the same time provides the maximum possible comfort for the patient in various positions required for either medical or surgical cases.



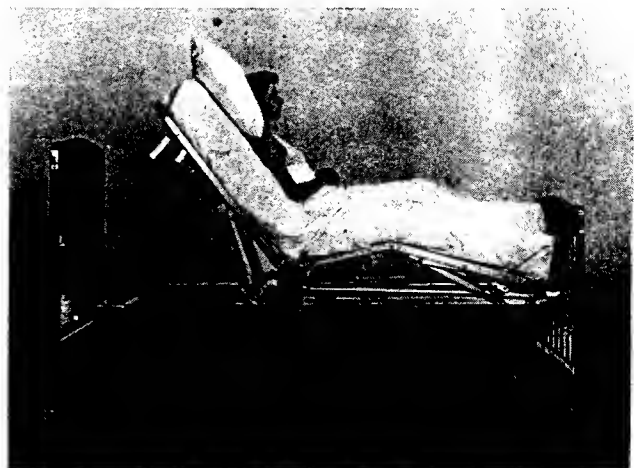
FLAT POSITION



TRENDELEBURG POSITION



HYPEREXTENSION POSITION



HIGH SITTING POSITION

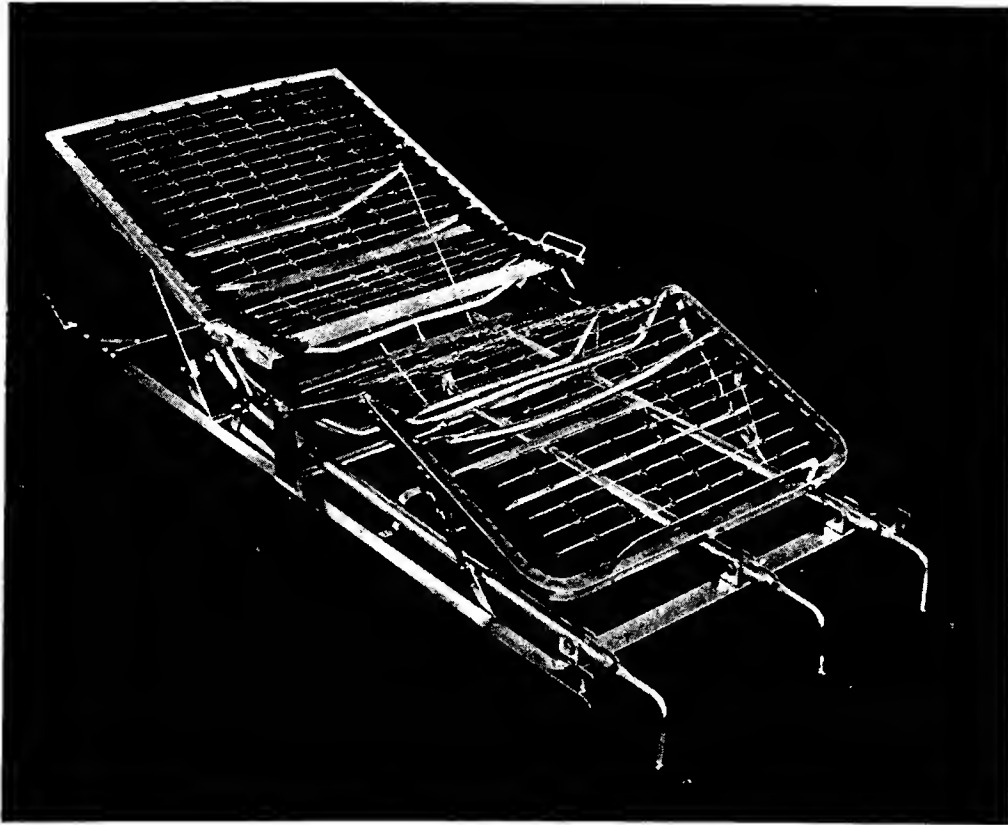


Fig. 6.

The center section formerly used has been replaced by a double duty intermediate wing section. This wing is pivoted and provided with a simple locking device. When in the "V" position, the wing section can be lifted and locked, thereby partially closing the "V" when not needed and providing normal support in this area. In addition to the crank-operated head and leg sections, a third crank permits adjustment of the intermediate wing section, thus providing a multitude of new positions not possible with any other spring. (See Figures 7, 8, and 9).

Other Developments

Doctor Marvel Beem of Los Angeles, California, has developed over the past eight years a fully mechanized hospital bed. The Beem Bed (Fig. 10) is advertised

CONVENTIONAL SITTING POSITION

The principal characteristic of the conventional two-crank hospital bed is the fact that the central section of the spring under the patient's buttocks constantly remains horizontal and at the same level of elevation. The result is that all sitting positions provided by a two-crank bed present unsatisfactory body posture because of constriction of abdominal muscles, curve in spinal column, and insufficient lumbar support.

HIGH SITTING POSITION

The Deckert Multi-position Spring provides an excellent cardiac sitting position which increases the elevation of the heart and lung areas in relation to the lower extremities. The sitting position thus created is very comfortable because of the better distribution of the patient's weight and proper support given the spinal column. Many intermediate adjustments are also possible.

In this illustration the bedpan has been placed under the patient. This can be performed without lifting the patient by pressing the bedpan into the "give" of the mattress. The foot section has been cranked up to form a "V" depression in the spring. The bedpan is secured in the "V" depression of the spring without causing any unnecessary pressure against the patient's body.

As the patient is cranked up into a sitting position, his own weight will adjust him on the bedpan. Most of the bedpan pressure is eliminated, since the upper part of the body is well supported by the upper sections of the bed. By adjusting the wing section of the spring properly, a complete relaxation of muscles in the area of the abdomen is achieved.

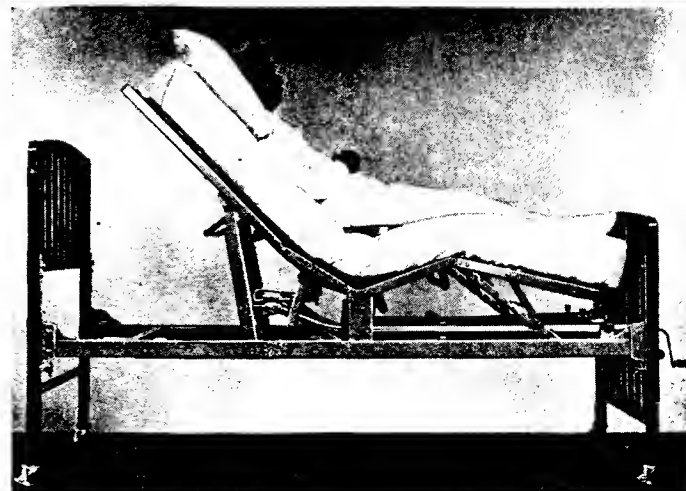
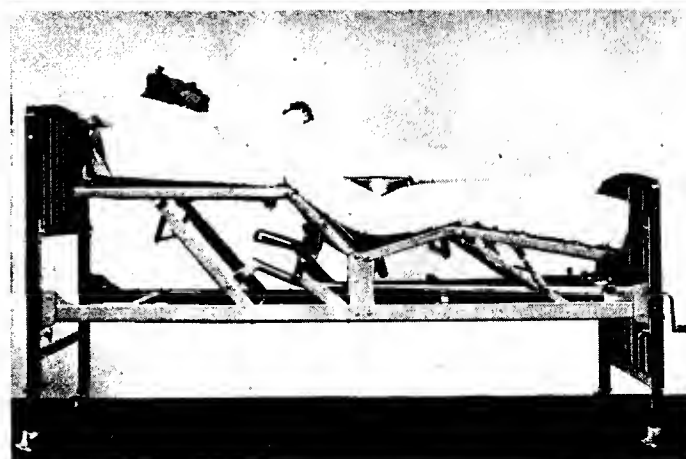
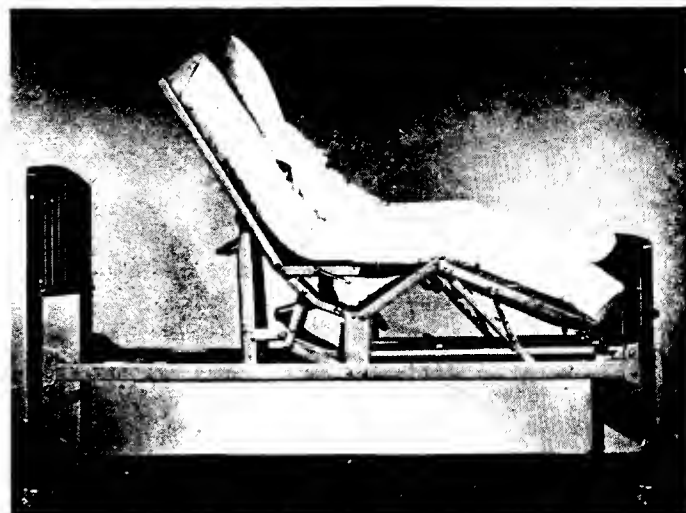
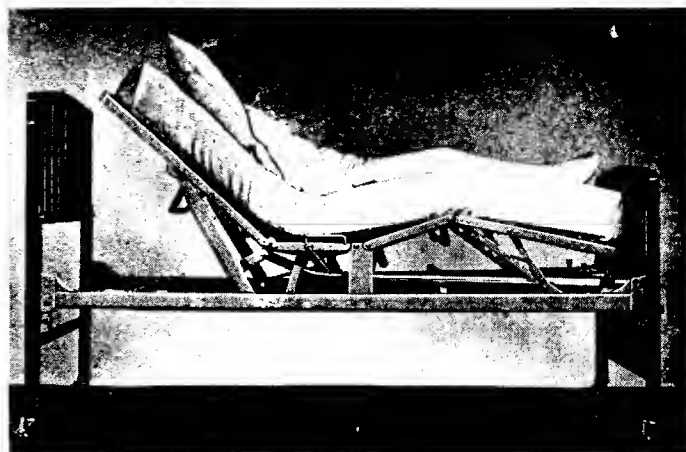


Fig. 7.

When the bedpan is placed under the patient's buttocks, the foot section is brought to a horizontal position by elevating the thigh section. The patient reclines comfortably with the bedpan secured in the "V" depression of the spring.

For removal of bedpan the procedure can easily be reversed and the bedpan removed without inconvenience to the patient.

SPINAL HYPEREXTENSION

A complete range of hyperextension positions is attainable with the Deckert Multi-position Spring. Since the Deckert Multi-position Spring has an eighty-inch frame, an average patient can be placed in such a way as to bring pressure against any vertebrae desired. Through gradual adjustment of the middle crank, hyperextensions may be obtained to any degree prescribed by the doctor.

REVERSE SPINAL AND POLIO POSITIONS

This position is the same, as far as the spring is concerned as the hyperextension positions with the patient placed prone, face downward. This position is used in polio cases of muscular contraction of the spine, for rectal surgery and examination and also as an oral and nasal drainage position. Intermediate adjustments are also attainable.

POLIO SITTING POSITION

This position is attainable with the aid from either Simmons No. H-25 Foot Rest or with an ordinary foot board properly adjusted for use in polio cases of muscular contraction of the legs. Any size patient can be properly placed by first raising the head section of the spring and then making slight adjustments of the wing section to make the patient comfortable.

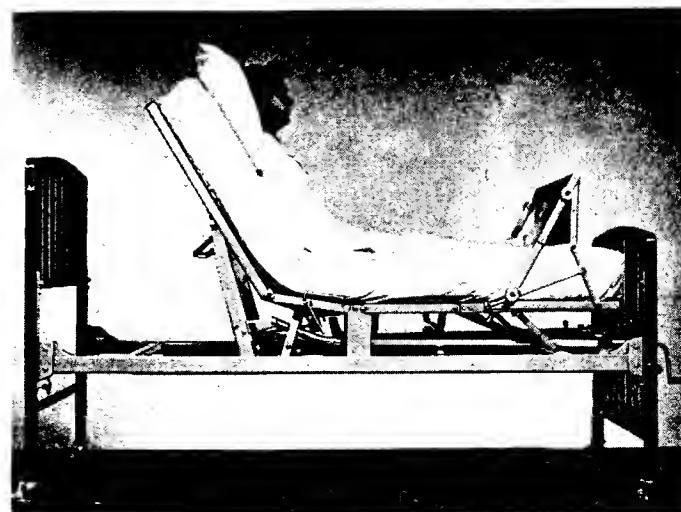
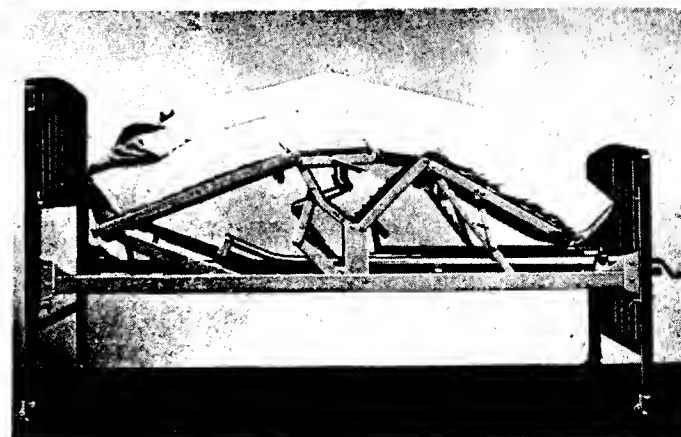
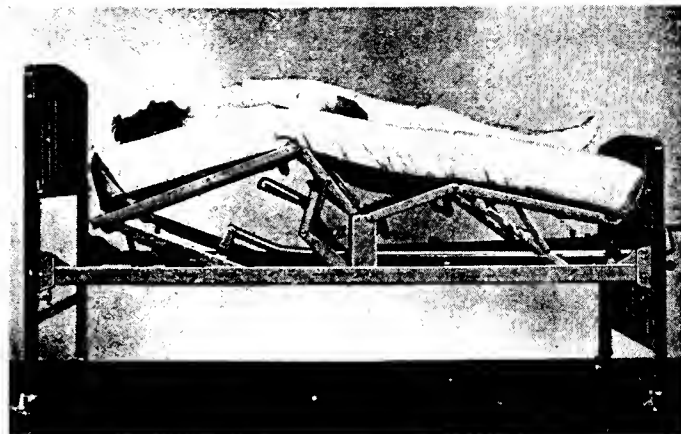
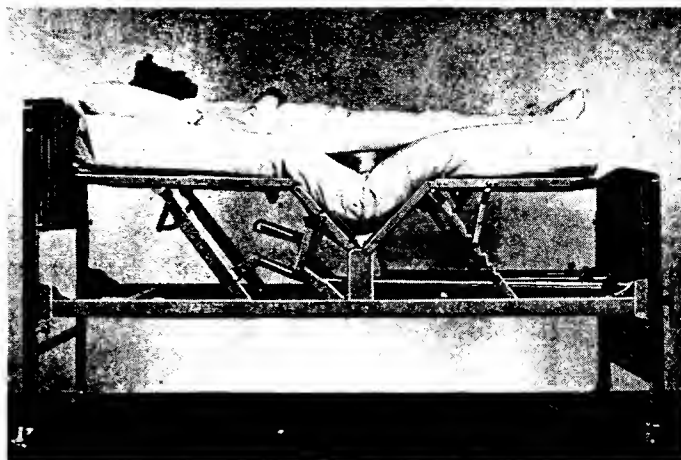
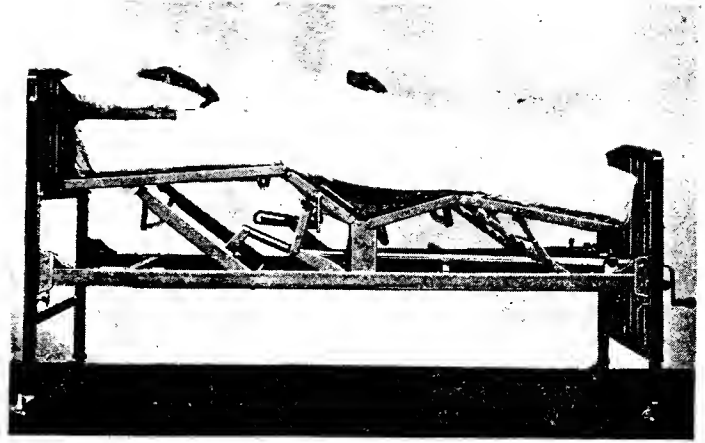


Fig. 8.

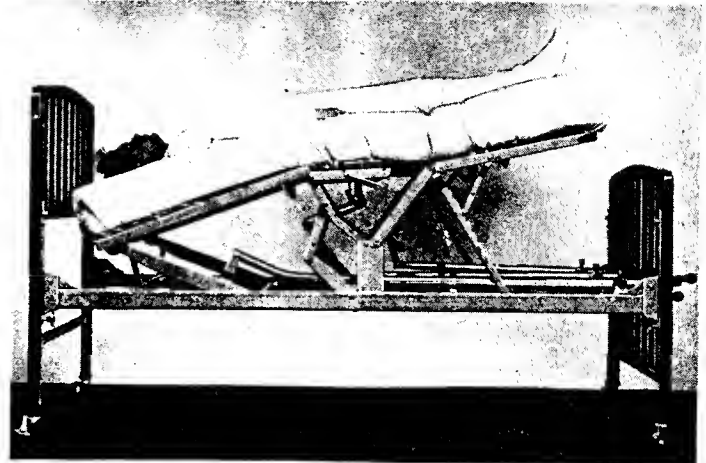
LATERAL CHEST POSITION

This position is extremely desirable, particularly in drainage of chest cavities and for prevention of post-operative adhesions. While the patient is comfortably reclining, his hip bone may be fitted into the "V" opening of the spring, allowing proper pressure to be provided against the incision resulting from chest operation cases. No two-crank hospital bed provides a comfortable position for patients who have to recline on their side.



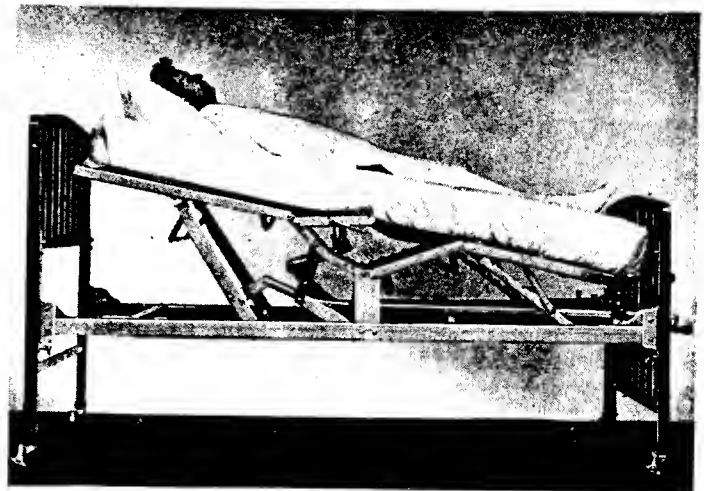
TRENDELENBURG POSITION

Conventional hospital beds require the use of elevating stems or blocks to attain this position which is frequently used post-operatively or for postural drainage. The Deckert Multi-position Spring permits the nurse to place even a heavy patient in shock position without any additional help or accessories. It further permits the rate of change of inclination to be controlled. Since the Deckert Multi-position Spring permits a greater degree of inclination between lower extremities and the head, the efficacy for postural drainage is enhanced.



FOWLER POSITION

Here again the Deckert Multi-position Spring renders obsolete the use of extension stems or blocks. The Deckert Multi-position Spring permits a nurse to handle a patient without additional help. When the L-171 spring is placed in an inclined plane, it provides an ideal postural drainage position. If the conventional Fowler position is required, the wing section can be dropped. By raising the wing section by the center crank, further adjustment of the bed to meet individual needs may be made.



HORIZONTAL ELEVATIONS (EYE BED POSITION)

The Deckert Multi-position Spring may be placed into four important horizontal planes of elevation to facilitate many treatments. When the bed is provided with two low ends, it becomes an ideal eye bed and adequately replaces the need for an eye surgery operating table. The patient's head can be brought up to the reach of the doctor's hands, and the necessary slight post-operative shock position can be given without any jolts to the patient.

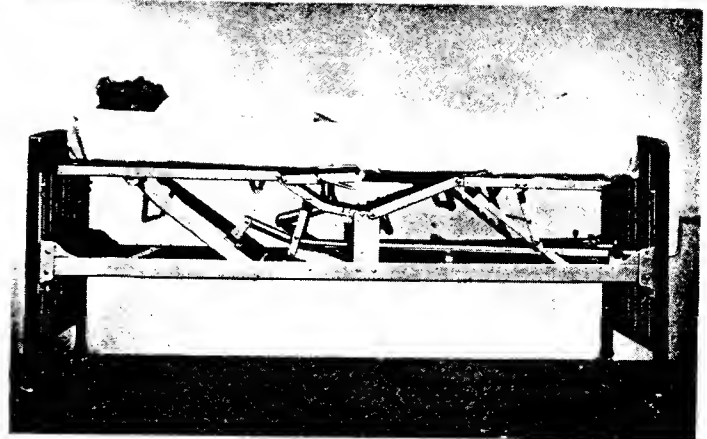


Fig. 9.

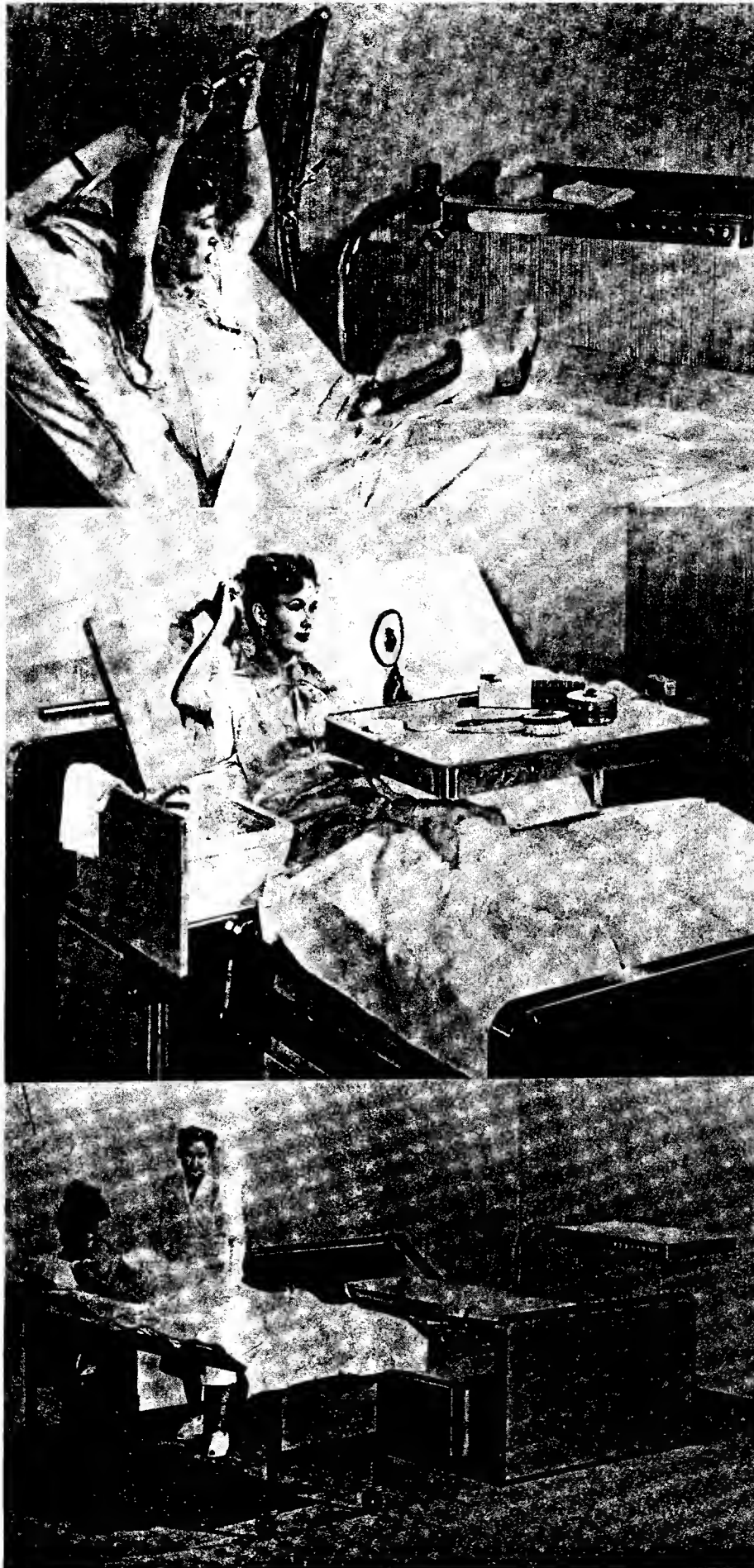


Fig. 10.

as, "The biggest news in patient care since Florence Nightingale" and lists among other things the following features: A full sized flush toilet and lavatory with hot and cold running water, a push-button control panel for the mechanized units such as the head, foot and knee lifts, a built in stretcher with variable spring height.

Other manufacturers have gone in for only partial mechanization, the head and foot adjustments being driven by electric motors. The controls are such that they can be operated by both the nurse and the patient, or locked in any position if so desired.

Bed Ends

For the most part hospital bed ends differ in style for appearance considerations only. Most bed ends are made in three series, the difference being brackets for the attachment of safety sides and other special purpose equipment.

The vari-hite bed end (Fig. 11) is mechanical in nature and can be raised or

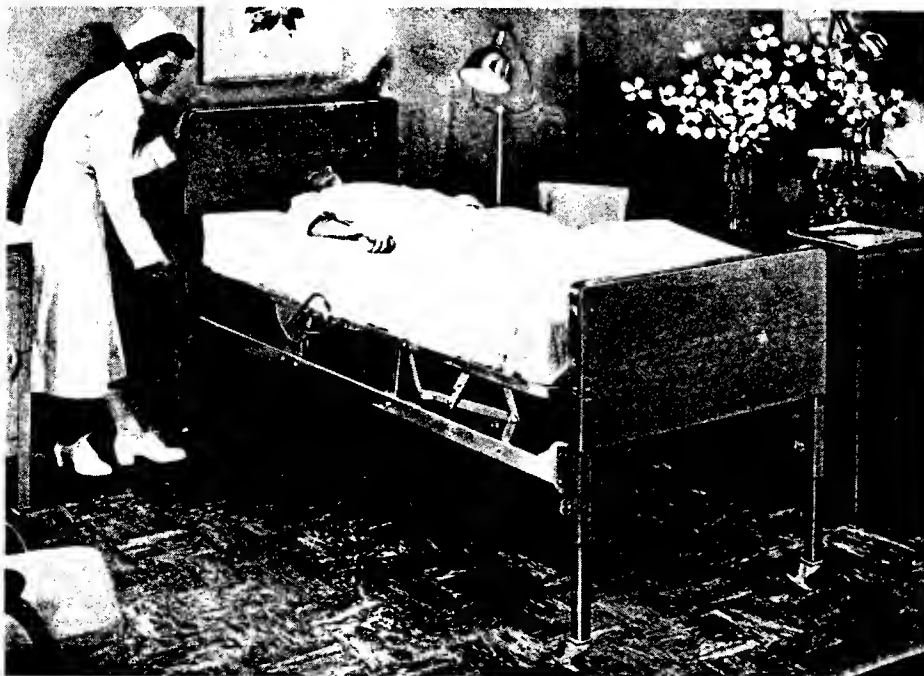


Fig. 11

lowered by means of a crank to meet the specific requirements of the doctor or patient. This permits patients to be treated at the regular hospital height and then lowered to the bed height they are accustomed to having in their homes. Not only does this bed eliminate patient fear of being at an unfamiliar height, but it helps to prevent accidents caused by falls. In the raised position the standard hospital spring height of 27 inches is maintained; a few turns of the crank at the head and foot lowers the spring to 18 inches above the floor.

Accessories

The treatment of special or restless patients sometimes requires the use of safety sides (Fig. 12). These safety sides may be adjusted to either of the two

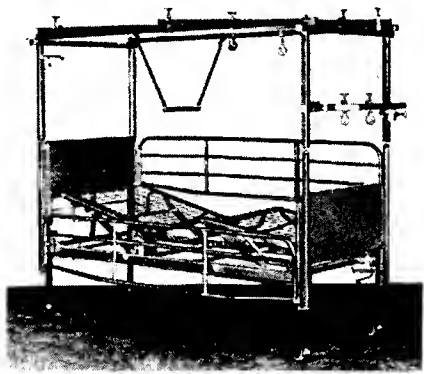


Fig. 12.

extreme positions or any neutral position.

Pedal controlled safety sides (Fig. 13) are often used as a safe guard against possible mishap, as the sides cannot be lowered by a person in the bed. This makes it especially useful on children's cribs. The sides, are, however, easily operated by the attendant who presses the pedal and simultaneously lifts

the side.

The treatment of orthopedic patients requires just about the maximum in specialized sick room equipment. The balkan frame (Fig. 12) in combination with the exercise bar and the turntable telescopic fracture bar (Fig. 14) will provide, in addition to other uses, a wide variety of both

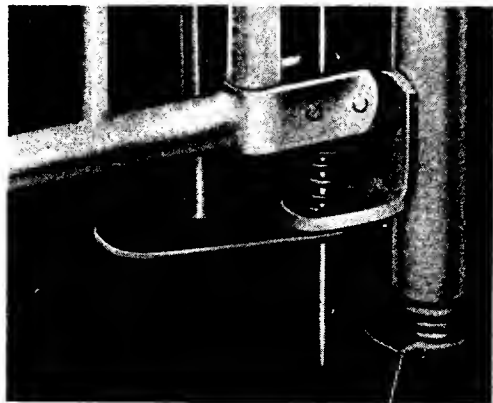


Fig. 13.

horizontal and vertical traction positions.

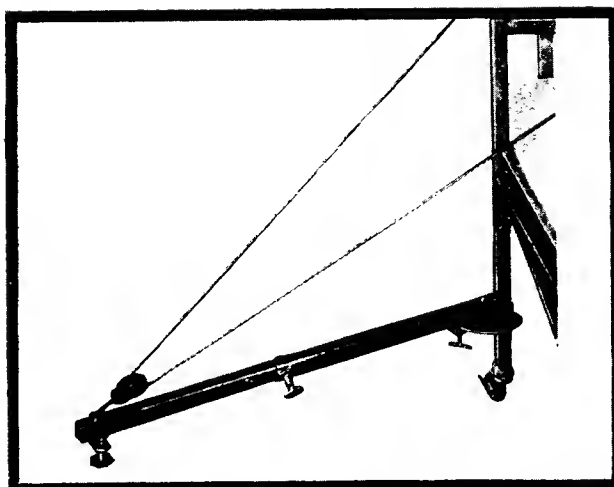
The overbed table is a general purpose utility table which can, because of its adjustable height, be used at either a bed or a chair. The large surface area enables the patient to keep most necessities within reach, the removable tray being used as additional storage space. A

double-hinged top permits full use

of the table from either side of the bed and the height may be varied between 30 and 45 inches by either a crank or a counterbalanced spring mechanism. The use of Zalamite gives the top, an extremely hard surface that is unaffected by hard knocks, temperature changes and spilled liquids.

The bedside cabinet, which is used for the storage of such items as a wash basin, blankets and other necessary items, comes equipped with wooden drawer guides and rubber bumpers which reduce annoying squeaks and noises. An attachment which combines the features of the bedside table and the overbed table is the drop leaf—a folding leaf which fastens to the side of the bedside cabinet. One manufacturer lists the incorporation of a sliding drawer tray and magazine rack in one model and a ventilated bedpan compartment in another.

Other types of sick room furniture include dressers, desks, vanities, chairs, foot stools, night tables and partitioning screens. The vanity mirror is hinged so as to provide greater flexibility for all round use. Most of the above mentioned items are shown in Figure 15.



LOW LATERAL TRACTION—The Turntable Telescopic Fracture Bar, when clamped to any of the four uprights of the bed, provides a variety of low lateral tractions difficult to obtain with makeshift equipment.

Fig. 14.



Fig. 15.

Design Information

Construction and Test

The three basic spring types have been included in blueprint form for the purpose of illustrating construction detail and size data. In addition, one partial assembly is shown so as to illustrate the fabrication and assembly procedures that are being incorporated in present day models.

In most instances the moveable wing sections are controlled by crank mechanisms which are operated from the foot end of the bed and may be locked in any intermediate position. The crank, which is made out of flat steel stock, is pinned to the elevating screw. In the disengaged position the crank fits into a vertical slot in the well anchored elevating screw housing and is thus prevented from rotating accidentally.

The method of fastening the spring to the bed end varies with each manufacturer. Federal specifications require that bed ends, after assembly, be vertical to within $1/8$ of an inch.

As with just about every functional object, the hospital bed is manufactured so as to perform satisfactorily under various conditions such as those imposed by high loadings. The load test requirement for the Deckert Multi-Position spring is shown in Figure 16.

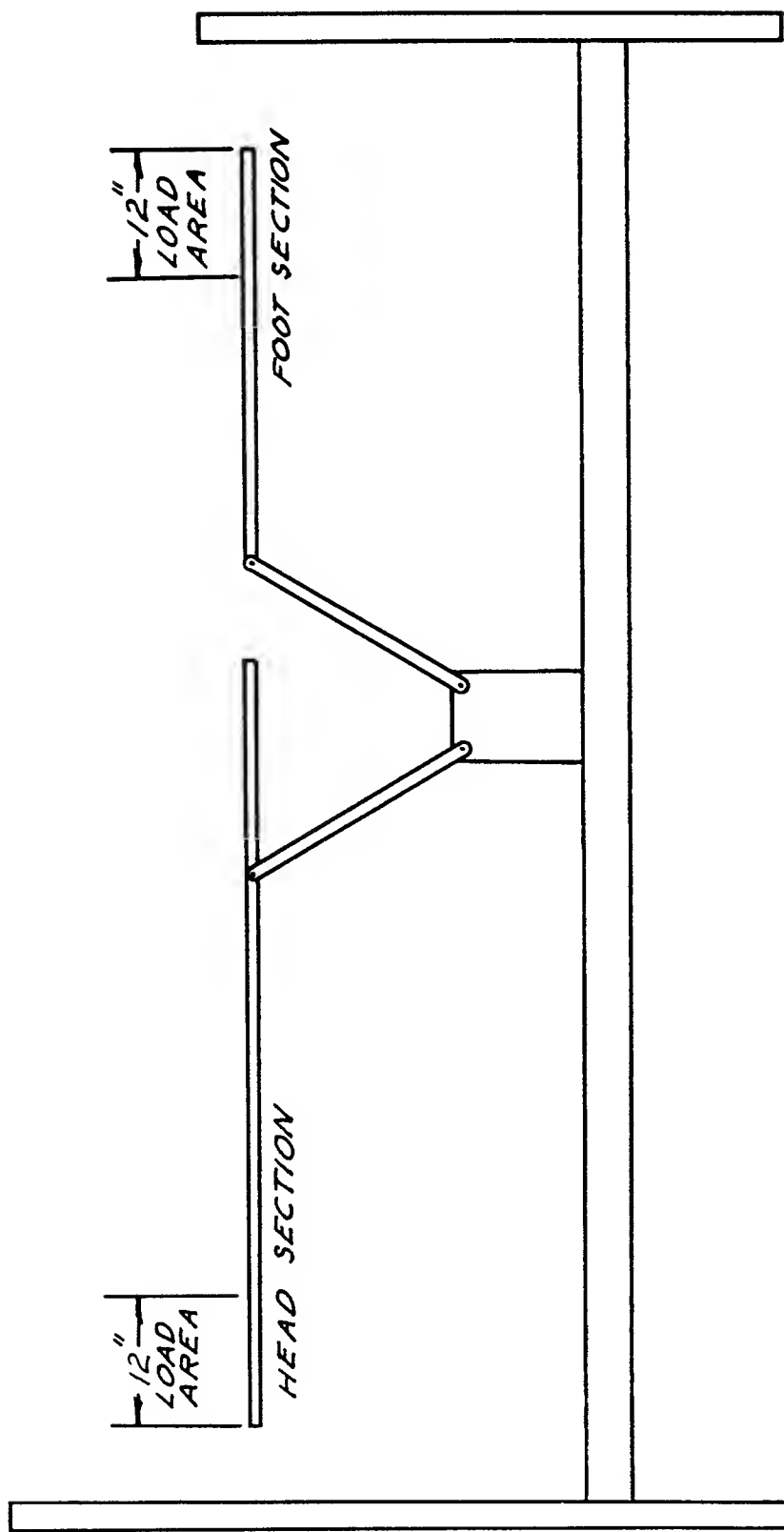


Figure 16.

TEST REQUIREMENT

LOAD TEST

SPRING TO BE ADJUSTED TO POSITION AS SHOWN BY ABOVE SKETCH, AND APPLY A LOAD OF 600 POUNDS TO HEAD SECTION AND 500 POUNDS TO FOOT SECTION EVENLY DISTRIBUTED WITHIN THE LOAD AREA WHICH IS 12 INCHES IN LENGTH AND FULL WIDTH OF THE FABRIC FRAME. THERE SHALL BE NO PERMANENT DISTORTION OF ANY PART OF THE SPRING.

Specifications

The following specifications are included for your convenience as reference material. These specifications are such as to meet with rigid federal specification requirements. The quality of material, workmanship and manufacturing procedures illustrated in these specifications may be in general extended to include all other types of sick room furniture and equipment.

SIMMONS COMPANY SPECIFICATION FOR SPRING, HOSPITAL BED, 2 CRANK (ADJUSTABLE)

DESCRIPTION - The bed spring (Adjustable) shall be "3 Piece" type used in conjunction with a head and foot piece, forming the bed.

This spring shall be manually (Hand Crank) operated type consisting of a main frame supporting an adjustable fabric frame, which shall rest on, and is hinged to the main frame.

The fabric frame consists of a hinged back section, intermediate section, and leg section. Posture adjustments shall be accomplished through an arrangement of two folding cranks having suitable, elevating screw mechanism. Facing foot end of bed spring, the left crank operates back section, and the right crank maneuvers the intermediate leg sections. In addition to crank for leg section, this section has ratchets for hand operated adjustments.

POSITIONS - In addition the normal adjustments, the "Hyperextension", "Fowler", and "Shock" or "Trendelenburg" positions are easily obtainable with this spring.

STANDARD MATTRESS SIZE - 3/0 x 6/8 (35" x 80")

GENERAL DIMENSIONS

Nominal Size	- 3/0
Width O. A. Main Frame	- 35 - 3/16"

GENERAL DIMENSIONS continued

Width O. A. Fabric Frame	- 34 - 7/8"
Length O. A. Fabric Frame	- 80"
Length O. A. Side Rails	- 82 - 13/16"
Distance between posts (Average)	- 83"
Height O. A.	- 9 - 1/4"
Other dimensions as per drawing.	

TYPE, GRADE, & CLASS - Bed Spring (Adjustable) shall be but one type, grade, and class.

MATERIAL & WORKMANSHIP

Material - All frame angles, flat side rail hooks, corner braces, intermediate section stop rail, ratchet slides, elevating shaft hanger brackets, hinge plates, mattress retainer, elevating arms, and brackets shall be made from re-rolled, high carbon rail steel having minimum carbon content of 38%.

Wire - For the twisted link fabric, shall be bright basic steel wire.
For helicals, it shall be "Premier" automatic coiler grade spring wire.
For ratchet and pawl rods, it shall be "Acme" wire.

Tubing - For fabric frame stretcher tubes shall be drawn from cold rolled strip steel formed with electrically butt welded joint - SAE-1023 steel.

Rivets and pins shall be of basic steel wire.

Workmanship - Shall be first class in all respects. Bed spring shall be free of all defects which might impair the serviceability. All riveted, movable joints shall be tight.

Finish - All parts to be finished shall be free of foreign matter before the finishing coat is applied. The finish shall consist of a heavy coat of aluminum bronze paint, high grade material and baked on. The spring

fabric shall be electro-galvanized, and helicals shall be "Black Japanned". Loose hardware parts, such as bolts, nuts, washers, motivating parts not receptable to paint, shall be in either cadmium plated or bright nickel plated finish.

GENERAL CONSTRUCTION - To assembly in general shall be accomplished by cold riveting except where otherwise indicated.

DETAILED REQUIREMENTS

MAIN FRAME - Consists of side rails, end rails, corner braces, and intermediate section stop rail.

Side Rails	2-1/4"x1-1/2"x5/32"	Plain angle
End Rails, Head	1-1/4"x1-1/4"x1/8"	Plain angle
End Rail, Foot	2-1/4"x1-1/2"x11/64"	Plain angle
Corner Braces	1"x1/8"	Flat
Inter. Sec. Stop Rail	1"x1"x1/8"	Plain angle
Pivot Plates	4-1/4"x3/16"	Mild Steel Flat

SIDE RAIL HOOKS - Shall be formed from 3-5/16" wide x 5/32" flat steel, hook shape, and riveted to top side of main frame side rails at the ends. The main frame side rails are also hook shaped at ends, and this forms the double hook connection with bed and post bracket rivets.

FABRIC FRAME - Consists of a continuous bow shape back section, straight seat section, and bow shape leg section hinged together to form an adjustable fabric frame.

The back section, intermediate section, and leg sections shall be provided with offset type, tabular stretchers extending from side to side and riveted thereto.

The back section shall be provided with a "U" shape stop and stop locks. This member shall extend between sides of back section and be riveted thereto. It retains this section in its horizontal position by resting upon the main frame end rail, also, arrangement provides for clearing of end rail permitting back section to be lowered to "Shock" position, and upon return to horizontal it automatically falls into normal position.

Back Section	1-1/4"x1-1/4"x1/8"	Plain angle
Intermediate sections	1-1/4"x1-1/4"x1/8"	Plain angle
Leg Section	1-1/4"x1-1/4"x1/8"	Plain angle
1 Back Section Stretcher Tube	7/8" O.D. x 0.042 wall	SAE-1023 Steel
1 Leg Section Stretcher Tube	7/8" O.D. x 0.042 wall	SAE-1023 Steel
2 Inter. Section Stretcher Tubes	1-1/16" O.D. x 0.072 wall	SAE-1023 Steel
Back Section Stop	1"x7/32"	Flat steel

MATTRESS RETAINER - Shall be 7/8"x3/16" flat steel, inverted "U" shape, inserted through slots in foot section frame and bolted thereto.

FABRIC - Shall be of #14 gauge, bright basic steel wire, composed of strands of twisted wire links, and with the strands assembled together by single wire hooks to produce a rectangular opening of 1-7/8"x3-15/16". The fabric after assembly shall be mounted into fabric frame by means of #12 gauge, Premier, spring wire closed coil helicals.

Fabric	1 piece	40 strands x 7 links per strand
Helicals	40 pieces	#12 ga. x 12 turns - At one side
	40 pieces	#12 ga. x 12 turns - At other side
	12 pieces	#12 ga. x 12 turns - At ends

All open wire ends of helicals and fabric, after mounting in fabric frame, shall point downward.

PAWL AND RATCHET - This medium shall form an auxilliary adjustment for fabric leg section. It shall be hand operated and independent of the mechanical motivation.

The pawl arms shall be formed from 1-1/8"x3/16" steel flat, and the spreader shall be of 11/32" diameter Acme steel wire, with ends flattened, inserted through slotted holes in pawl, and ends peened. Arms shall be offset to provide clearance for passing ratchet when folded within frame sides, and shall be riveted to fabric frame using shouldered type rivet.

The ratchets, shall consist of ratchet proper, support arms and spreader rod. The ratchet shall be curved type with four (4) notches for adjustment, and made from 7/8"x3/16" flat steel. The supports shall be from 1"x7/32" flat steel and the spreader of 11/32" Acme wire. Ratchet shall be attached to outside of support, and the top end of support shall be attached to fabric frame, while the bottom end shall contain the spreader rod which projects through, and projecting ends provided with 3/4" diameter rollers which works upon an angle slide provided on the inner side wall of main frame.

MECHANISM - The back section and leg section shall be raised and lowered independently by means of screws running through fixed bearing and nut which activates the elevating shaft, arms and lifting links.

The screws and nut shall be encased in a tubular housing and the entire assembly shall be anchored to main frame foot and rail. The main bearing shall be provided with a grease cup.

The screws shall be operated by means of retained, collapsible crank handles, which can be folded downward when not in operation. Cranks shall be of .27" x .750" flat steel with shaped wooden handles.

CONSTRUCTION NOTES

All exposed parts to have well rounded corners and free from burrs. All high carbon steel angles and flats shall have mill or rounded edges.

The assembly shall be accomplished by cold riveting, steel arc welding, and bronze brazing, where indicated.

All hinge points are joined by means of shouldered rivets with steel washers between members to act as bearings. All joints to be firmly riveted to prevent any rocking of framework yet permitting freedom of action.

The screw and bearings of the mechanism shall be packed with grease prior to leaving factory.

PACKING - Unless otherwise specified the standard pack conforming to regulations of interstate commerce commission and consolidated freight classifications when applicable, and to good commercial practices to assure prompt and safe delivery, by common or other carriers, shall be used.

Functional Coordination

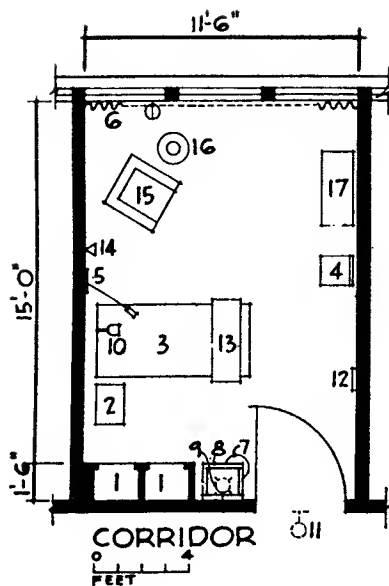
The problem of designing a hospital is probably the most complex and most challenging problem of its kind. The physical layout, as attested to by anyone who has ever worked inside a hospital, has a marked effect on its operating efficiency and its success in the overall mission of raising the overall standard of health. In addition, the design of the physical plant has a direct bearing upon the cost and ease of operating and maintaining this complex institution.

Although hospitals are basically similar in that they all have the same basic functions and similar goals, each one is different. There are differences such as local problems which must be solved for each particular hospital if that hospital is to be successful in attaining that goal.

Yet, because of this basic similarity, it is possible to list certain general categories of elements that have to be considered in planning any hospital. It is these elements that provide guides that can be readily adapted to a local situation - in a form that is understandable to anyone concerned with hospital planning.

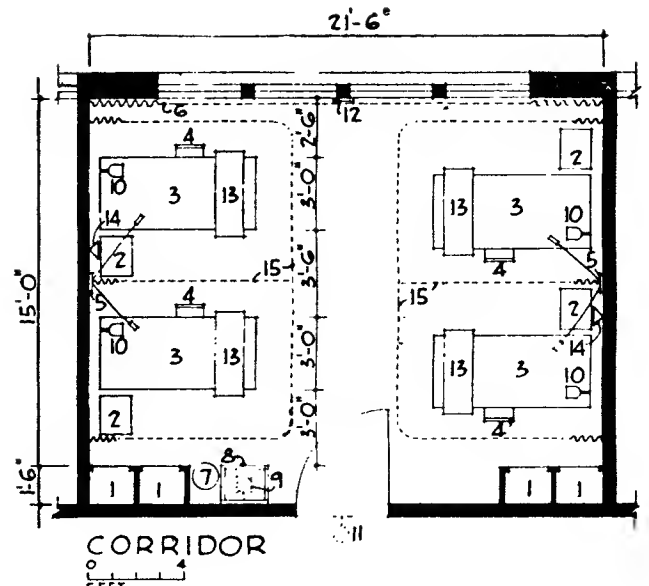
The plan view representations of hospital sick room layouts that appear in Figure 17 was taken from the booklet "Elements of the General Hospital" which is published by the U.S. Public Health Service. It represents a synthesis of the best judgment of those who manage the internal functions of the hospital and those who plan the physical layout to facilitate these functions.

Although it was designed from an architectural point of view and as an integral part of a complete hospital layout it is useful in our application in that it not only provides a picture version of a hospital room, from which we can get a feel for the space limitations, but in addition it supplies a listing of the typical requirements of the hospital sick room.



23—Typical One-Bed Room

1. Built-in locker
2. Bedside cabinet
3. Adjustable hospital bed
4. Straight chair
5. Nurses' calling station with duplex receptacle
6. Sliding window curtain
7. Waste paper receptacle
8. Lavatory with gooseneck spout and knee or elbow control
9. Wall bracket light, switch controlled
10. Bed light
11. Corridor dome light
12. Night light, switch controlled
13. Overbed table
14. Telephone outlet
15. Easy chair
16. Floor lamp
17. Dresser



26—Typical Four-Bed Room

1. Built-in locker
2. Bedside cabinet
3. Adjustable hospital bed
4. Straight chair
5. Nurses' calling station with duplex receptacle
6. Sliding window curtain
7. Waste paper receptacle
8. Lavatory with gooseneck spout and knee or elbow control
9. Wall bracket light, switch controlled
10. Bed light
11. Corridor dome light
12. Night light, switch controlled
13. Overbed table
14. Telephone outlet
15. Curtain rod and curtain

(NOTE: The length of this room should be 24 feet if it is desired that the room be divided into two two-bed rooms at some later date.)

55.1—Recovery Room for a 200-Bed General Hospital

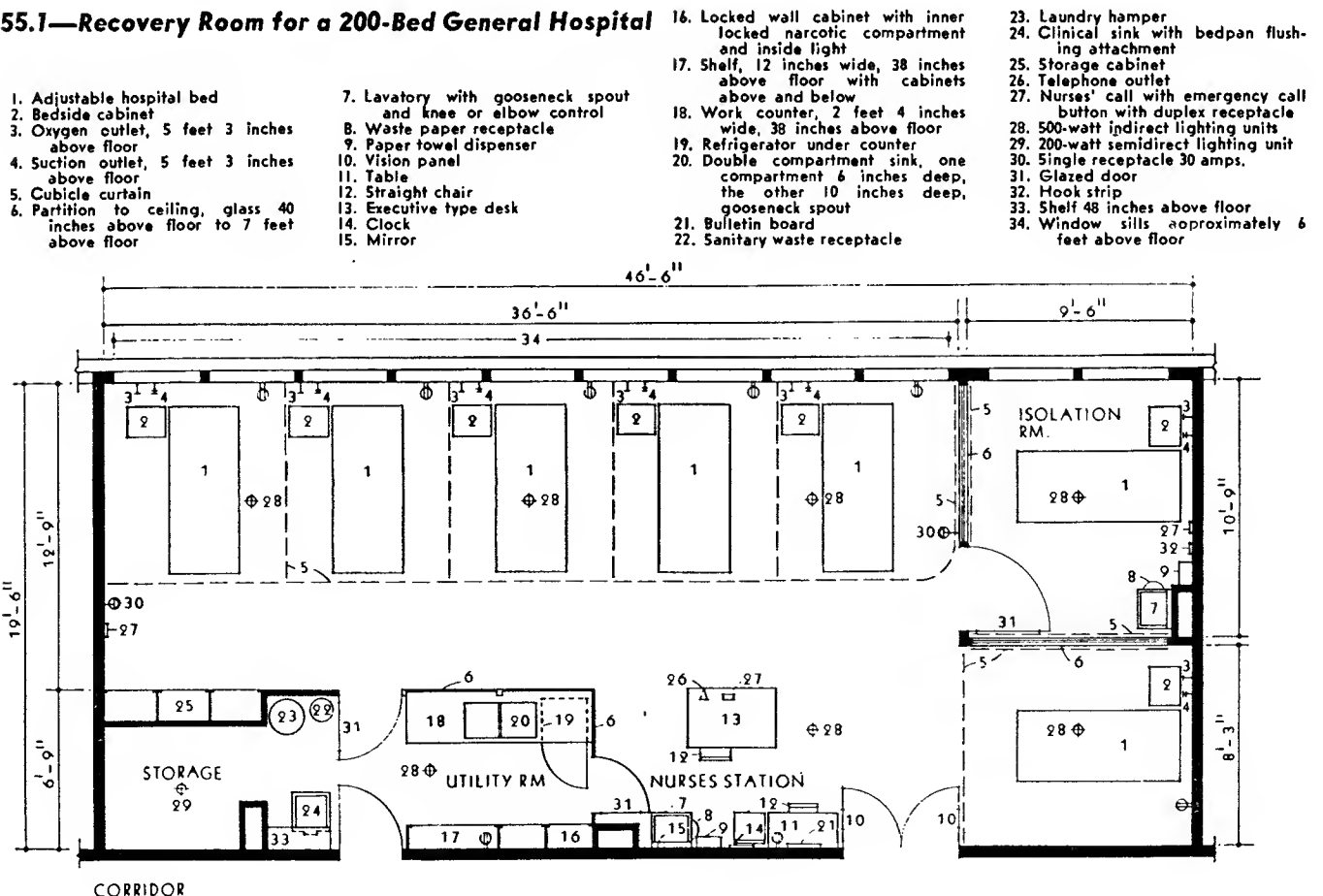


Fig. 17

Cost Data

The details, problems and duties confronting the planning committee of a proposed hospital facility resolve themselves into three cardinal classifications: the building, the personnel, and the equipment. We know the importance of procuring well trained personnel along with a well planned building, but in addition modern medical care demands proper high quality equipment.

The administrator, purchasing agent, consultant or other individual assigned the responsibility for planning the equipment must make sure that it is adequate in quantity and of quality that assures durability and performance. The equipment should be properly apportioned and budgeted to the various services of the facility so that unduly expensive or elaborate equipment is not provided for some services of the hospital, necessitating the use of cheap and inadequate equipment for other services.

Figures 18 and 19 are excerpts from a U.S. Public Health Service publication entitled "Hospital Equipment and Supply Lists". They supply total equipment cost data for various hospital sizes, and a breakdown of the many equipment requirements into their relative costs.

The equipment referred to as Group I equipment is that which is usually included in the construction contract. This includes hospital cabinets, elevators, kitchen facilities and other "built-in" equipment. Group II equipment is depreciable equipment of five year's life or more and Group III of less than five year's life.

Clearly then, it is the group II classification that directly concerns the designer of hospital sick room facilities. Figure 19 indicates that approximately seven and one half per cent of hospital equipment expenses are contained in the nursing department.

Because this is an appreciable figure, the following price data are supplied so that the equipment will not only be designed on a sound engineering basis, but also within a reasonable price range as compared with present day equipment costs.

Sick Room Equipment Price List

Pattern Number	Description	Price F.O.B. New England	Approx. Shipping Weight (Lbs.)
L-143	2-Crank Posture Spring-30 Inches (Replaces L-146)	\$ 43.50	130
L-156	Motor Driven Spring - 30 Inches	151.00	130
L-171	3-Crank Posture Spring-80 Inches	63.00	163
L-190	Side-Adj. Posture Spring-80 Inches	38.25	100
H-600	Four Filler Round End - 3" Casters	16.85	50
H-800-1	Seven Filler End	25.25	54
H-800-2	Seven Filler End, Equipped with Brackets for Safety Sides	30.25	60
H-800-3	Seven Filler All Purpose End	38.25	66
H-815-1	Five Filler Square End	23.00	50
H-846-1	Semi-Panel End	31.25	70
H-880-1	Seven Filler End Vari-Hite	54.25	60
H-885-1	Full Panel End Vari-Hite	55.50	68
H-40	Safety Sides-Portable Telescoping (Will fit any bed except beds with safety side brackets)	62.50	64
H-41	Safety Sides-per pair (Telescoping)	47.25	57
H-49	Safety Sides-Per Pair	15.80	10
H-12	Portable Balkan Frame - Complete	77.00	98
H-12P	Turntable Telescopic Fracture Bar	14.30	10
H-16	Balkan Frame- Complete	59.50	79

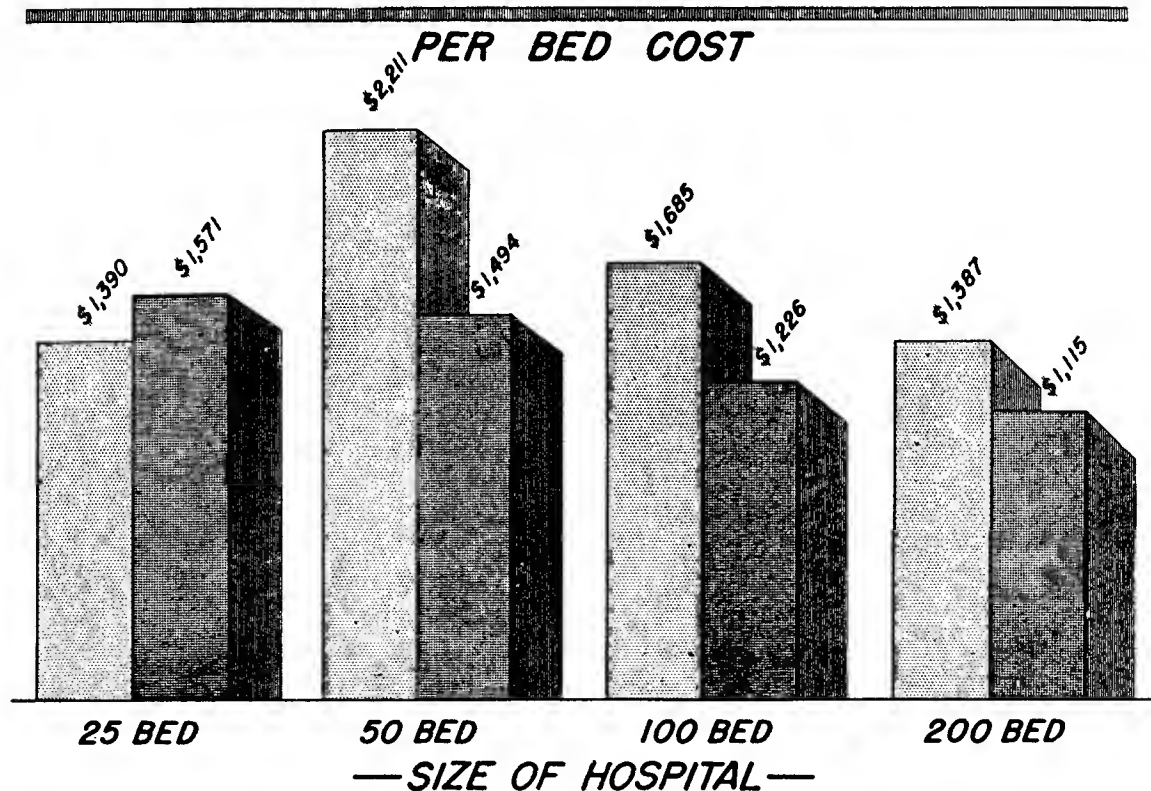
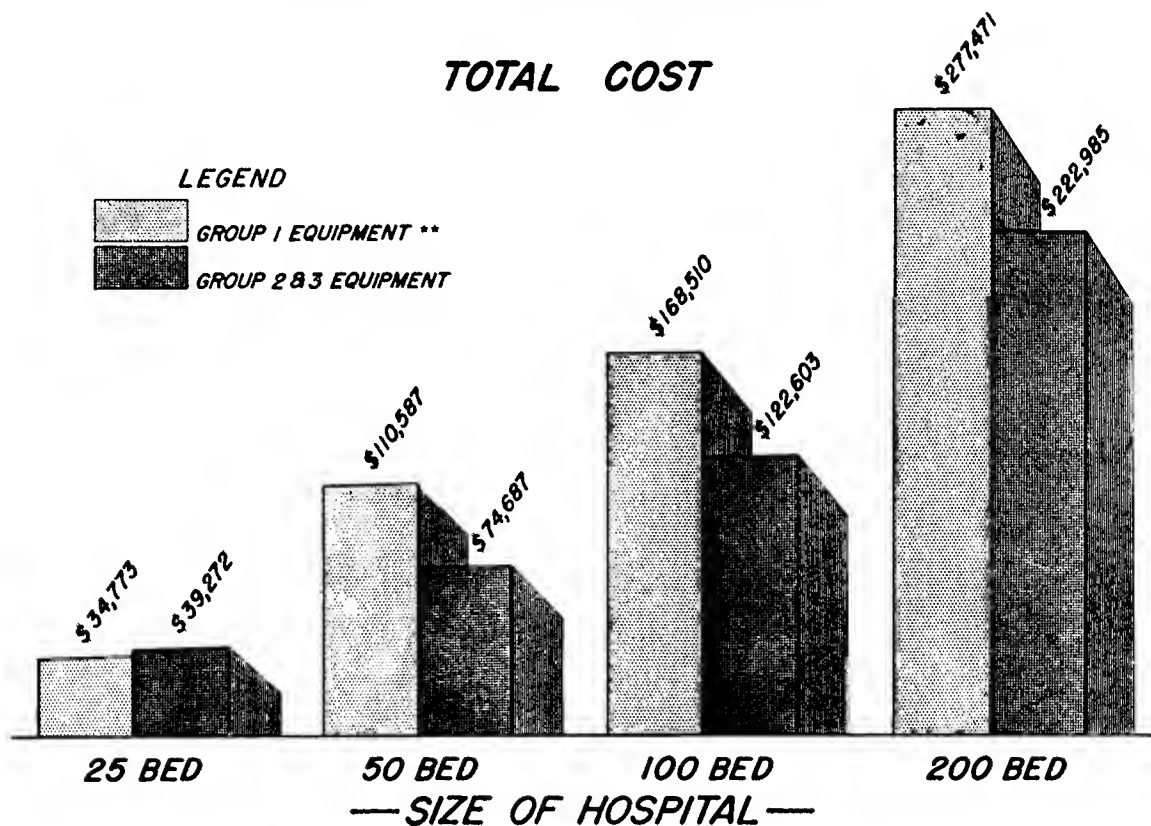
Sick Room Equipment Price List cont.

Pattern Number	Description	Price F.O.B. New England	Approx. Shipping Weight (Lbs.)
F-885-F	Overbed Table-Zalmitte Top (Hand Grip Adjust- ing) Single Pedestal-Stainless Steel Tray	\$ 50.00	47
F-889-F	Overbed Table-Zalmitte Top (Crank Adjusting) Single Pedestal-Stainless Steel Tray	52.50	45
F-369-F	Bedside Table-Zalmitte Top	26.00	35
F-441-F	Bedside Cabinet-Zalmitte Top	32.50	51
F-710	Arm Chair-Plastic Fabric (Rear Legs Extended)	33.00	22
F-711	Chair-Plastic Fabric (Rear Legs Extended)	25.75	20
F-772	Arm Chair-Plastic Fabric (Rear Legs Extended)	40.00	51
F-152-16	Night Table-With Drawer	17.80	27
F-180-3	Dresser w/FM-62 Mirror	94.00	201
F-180-4	Chest	84.00	170
F-180-7	Vanity Desk w/FM-60 Mirror	84.50	164
F-180-19	Van-D-Dresser (Less Mirror)	101.00	199

EQUIPMENT COSTS FOR GENERAL HOSPITALS

— ESTIMATED AVERAGES *

(GROUPS 1-2 & 3 EQUIPMENT)



* PLUS 20% FOR 1951 ESTIMATE
 ** INSTALLATION COSTS ARE NOT INCLUDED

Fig. 18

DEPARTMENTAL EQUIPMENT COSTS FOR GENERAL HOSPITALS **GROUP I EQUIPMENT AND GROUPS II AND III EQUIPMENT**

(Estimated Averages) *

DEPARTMENT	25 BED GENERAL HOSPITAL Group I**	50 BED GENERAL HOSPITAL Group I**	100 BED GENERAL HOSPITAL Group I**	200 BED GENERAL HOSPITAL Group I**
ADMINISTRATION DEPT.	\$ 190.00	\$ 610.00	\$ 781.00	\$ 953.00
DIAGNOSTIC AND TREATMENT FACILITIES	\$2,036.00	\$5,234.00	\$8,385.00	\$11,034.00
LABORATORY	1,309.00	2,883.00	4,335.00	7,264.00
MORPH & AUTOPSY	---	4,274.00	4,274.00	5,899.00
RADIOGRAPHIC	1,764.00	3,639.00	4,139.00	4,324.00
X-RAY THERAPY	---	---	---	927.00
PHYSICAL THERAPY	---	2,086.00	2,463.00	7,337.00
OCCUPATIONAL THERAPY	---	---	---	2,855.00
PHARMACY	50.00	1,845.00	6,826.00	9,613.00
FEEDING DEPARTMENT	5,105.00	14,148.00	29,138.00	62,820.00
NURSERY	727.00	2,913.00	3,475.00	6,385.00
STERNAL DEPARTMENT	9,686.00	14,969.00	25,929.00	37,604.00
OBSTETRICS DEPARTMENT	832.00	4,437.00	4,437.00	4,766.00
EMERGENCY DEPARTMENT	450.00	1,272.00	1,272.00	2,746.00
SERVICE DEPARTMENT Except:	6,116.00	16,367.00	28,317.00	50,644.00
DIETARY	7,927.00	23,421.00	25,074.00	32,589.00
LAUNDRY	617.00	10,289.00	19,307.00	30,081.00
OUT-PATIENT DEPARTMENT	---	1,837.00	3,146.00	5,067.00
DENTAL	---	5,597.00	5,597.00	5,597.00
	\$34,773.00	\$110,587.00	\$168,510.00	\$277,471.00
	\$39,272.00	\$174,687.00	\$222,603.00	\$222,985.00

* Plus 20% for 1951 estimate.
 ** Installation costs are not included.

Fig. 19

Market Information

One of the biggest single purchasers of hospital sick room equipment is the U. S. Government. Although the government is not the only purchaser, its share is large enough so as to be a deciding factor in the choice of design and manufacturing procedures. For the most part the government wants sturdy, well built equipment that will stand up under hard usage as well as impact tests, salt spray tests etc.

The following is an excerpt from Federal Specification AA-F-636 for three-crank hospital beds.

Pawl and Ratchet Impact Test

The pawl and ratchet mechanism of the leg section shall be capable of withstanding, without mechanical failure, an impact load of approximately 95 foot-pounds applied normally to the main frame when the leg section is in any one of its possible adjustable positions. The impact load shall be developed by dropping a bag of sand or cement weighing 95 pounds onto the frame from a height of 1 foot above the point of application on the frame.

In the competitive market (excluding the government) hospital sick room equipment is generally sold through business agents. Most sales are large in that hospital directors or purchasing agents usually buy equipment for a whole section or wing at one time. There is no particular geographic location about which the market is centered, so for the above reasons it might be well to design the equipment with the problem of space conservation for shipping well in mind.

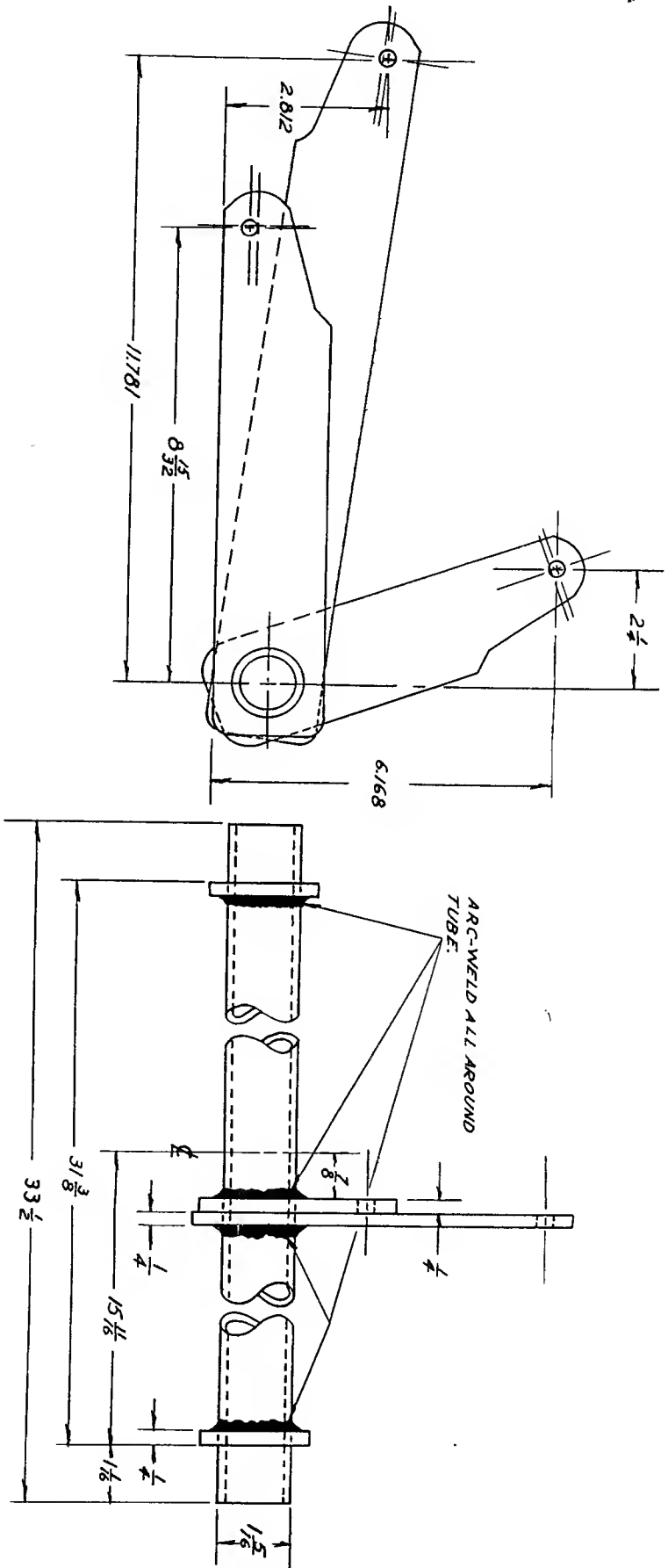
To date the relative sales volumes of hospital sick room equipment are as follows:

Springs

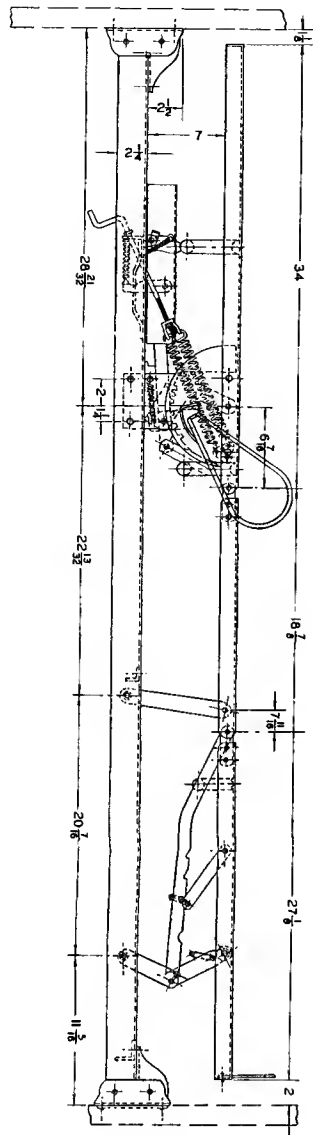
Improved two-crank spring	68%
Deckert Multi-position spring	19%
Side-Adjusting Spring	13%

Bed Ends (in order of sales)

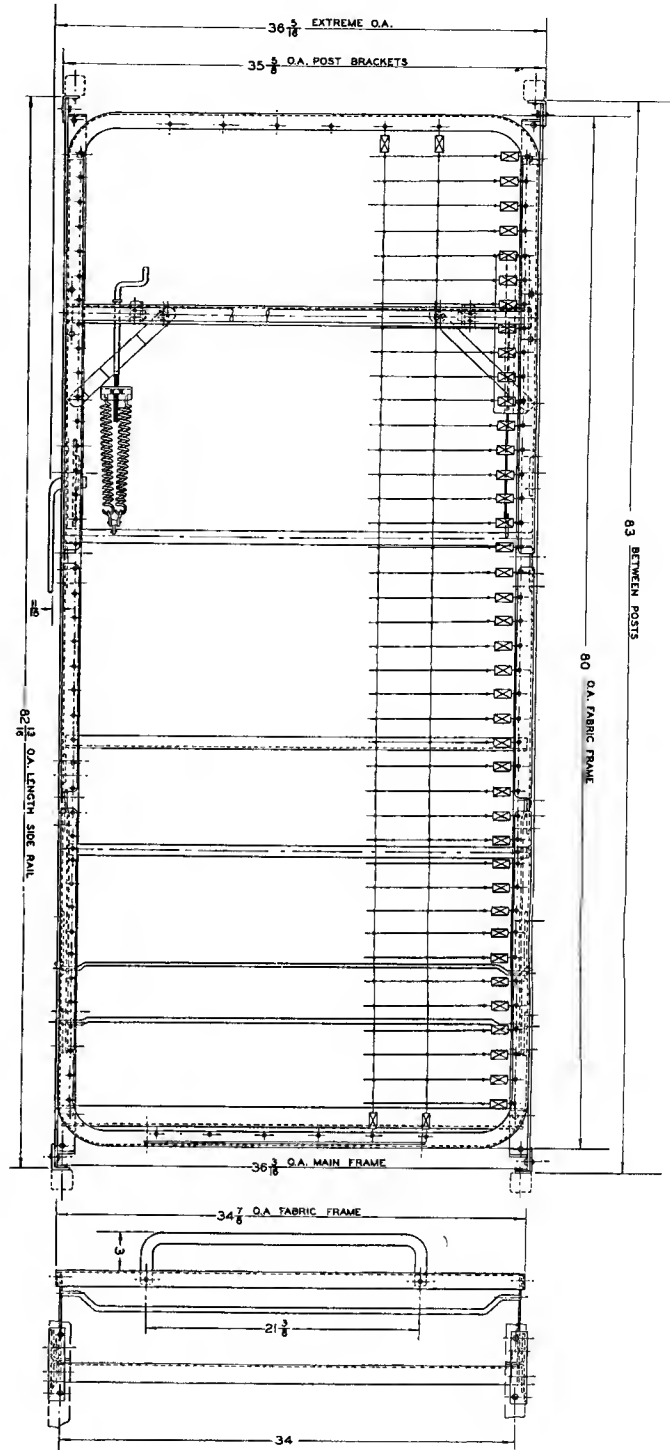
Semi-panel
Vari-Hite (solid panel)
Round tube (four filler)
Vari-Hite (seven filler square)
Square tube (seven filler)



CENTER ELEVATING
SECTION ASSEMBLY
L-171



SELF ADJUSTING
BED SPRING
L-190

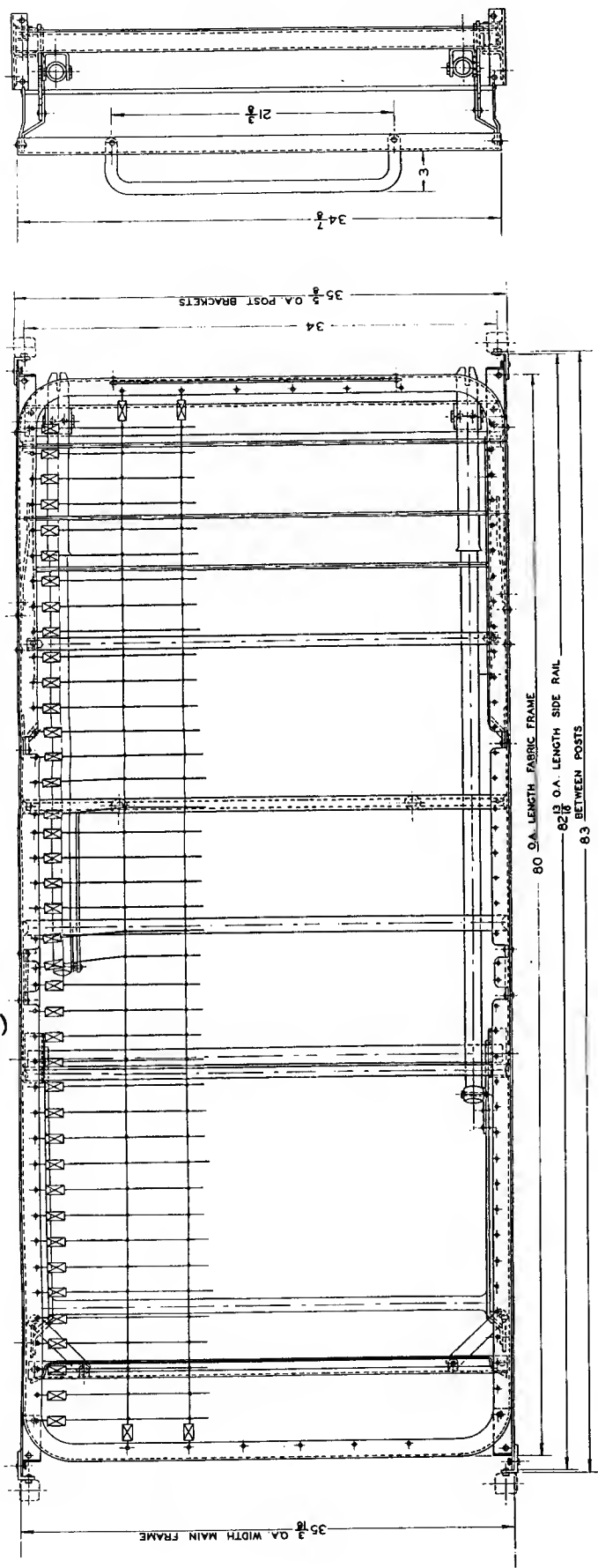


Springs

Improved two-crank spring	68%
Deckert Multi-position spring	19%
Side-Adjusting Spring	13%

Bed Ends (in order of sales)

- Semi-panel
- Vari-Hite (solid panel)
- Round tube (four filler)
- Vari-Hite (seven filler square)
- Square tube (seven filler)



POSTURE SPRING L-148

